

## CLAIMS

1. A current driving apparatus, comprising:

a first square wave generator directed to accomplish the timing control of the drive current;

a second square wave generator directed to accomplish the amplitude control of the drive current;

an FET; and

a power source;

wherein the first square wave generator's output is connected to the second square wave generator's input, the second square wave generator's output is connected to the FET gate, a current clamping resistor is provided between the FET source and the power supply, and the FET drain generates drive current to drive a possible load.

2. The current driving apparatus according to claim 1, wherein the first square wave generator comprises a first comparator, a low frequency sawtooth wave generator, and a timing control signal source, and wherein the low frequency sawtooth wave generator is connected to one input of the first comparator, and the timing control signal source is connected to the other input of the first comparator.

3. The current driving apparatus according to claim 1, wherein the second square wave generator comprises a second comparator, a high frequency sawtooth wave generator, a variable amplifier, and an amplitude control signal source, and wherein one input of the variable amplifier is connected to the output of the first square wave generator, the other input of the variable amplifier is connected to the amplitude control signal source, the output of the variable amplifier is connected to

one input of the second comparator, and the high frequency sawtooth wave generator is connected to the other input of the second comparator.

4. The current driving apparatus according to claimed 3, wherein the variable amplifier is a photosensitive resistor amplifier.

5. The current driving apparatus according to claimed 4, wherein the photosensitive resistor amplifier comprises an LED, a photosensitive resistor, an operational amplifier, a reference signal source, and a pair of resistors, the LED is connected to the reference signal source and illuminates the photosensitive resistor, which is connected between the negative input and the output of the operational amplifier, one of the resistors is connected between the negative input of the operational amplifier and the input signal, and the other of the resistors couples the positive input of the operational amplifier and ground.

6. A current driving apparatus, comprising:

- a first wave generator directed to accomplish the timing control of a drive current;

- a second wave generator directed to accomplish the amplitude control of the drive current;

- an FET; and

- a power source; wherein

said first wave generator and the second wave generator are sequentially connected together, an output of one of the first wave generator and the second wave generator is connected to a gate electrode of the FET, the power source is connected to a source electrode of FET, and a drain electrode of FET generates a linearly variable drive current.

7. A method of providing a linearly variable drive current, comprising steps of:

- providing a first wave generator directed to accomplish the timing control of a drive current;
- providing a second wave generator directed to accomplish the amplitude control of the drive current;
- providing an FET; and
- providing a power source; wherein

said first wave generator and the second wave generator are sequentially connected together, an output of one of the first wave generator and the second wave generator is connected to a gate electrode of the FET, the power source is connected to a source electrode of FET, and a drain electrode of FET generates said linearly variable drive current.